What is claimed is:

1. A method for characterizing a vehicle's emissions, comprising the steps of:

generating data representative of the vehicle's emissions with at least one sensor disposed within the vehicle;

transferring the data to a data collector/router comprising:

i) a microprocessor, and

ii) a wireless transmitter in electrical contact with the microprocessor; and

transmitting a data packet representing the data with the wireless transmitter over an airlink to a wireless communications system and then to a host computer.

2. The method of claim 1, wherein the data is serially transferred through an OBD-II connector or a similar serial interface to the data collector/router.

3. The method of claim 1, wherein the generating step further comprises generating data using a gas-sensitive sensor.

32

4. The method of claim 3, wherein the sensor generates a signal in response to gas containing at least on of oxygen, oxides of nitrogen, and hydrocarbons.

5. The method of claim 4, wherein the sensor is disposed in the vehicle's exhaust manifold or tailpipe.

6. The method of claim 1, further comprising the step of analyzing the data packet with the host computer to characterize the vehicle's emissions performance.

7. The method of claim 6, wherein the analyzing step further comprises extracting data from the data packet representative of the vehicle's emissions and storing the data in a computer memory or database.

8. The method of claim 7, wherein the analyzing step further comprises processing the data stored in the computer memory or database with an algorithm.

9. The method of claim 8, wherein the analyzing step further comprises analyzing the data with a mathematical algorithm to predict, infer, or estimate the emissions from the vehicle.

9 ~~10~~. The method of claim 8 ~~9~~, wherein the analyzing step further comprises analyzing the data with a mathematical algorithm to predict or estimate the concentration or amount of at least one of oxygen, oxides of nitrogen, hydrocarbons, or derivatives thereof in the vehicle's emissions.

10 ~~11~~. The method of claim 9 ~~10~~, wherein the analyzing step further comprises comparing the data with data collected at an earlier time to characterize the performance of the vehicle.

11 ~~12~~. The method of claim 10 ~~11~~, wherein the analyzing step further comprises comparing the data with a predetermined numerical value or collection of numerical values to characterize the emissions performance of the vehicle.

Sub B7

13. The method of claim 6, further comprising sending an electronic text, data, or voice message to a computer, cellular telephone, or wireless device after the data is analyzed.

34

14. The method of claim 13, wherein the electronic text, data, or voice message describes a status of the vehicle's emissions.

15. The method of claim 6, further comprising displaying results from the analysis step on a computer, cellular telephone, or wireless device connected to the World-Wide Web or the Internet.

16. The method of claim 15, wherein the results are displayed on a page on the World-Wide Web or the Internet.

17. The method of claim 6, wherein the method further comprises the step of sending a second data packet from the host computer system over an airlink to the wireless communications system and then to the data collector/router disposed in the vehicle.

18. The method of claim 17, wherein the second data packet is processed by the microprocessor in the data collector/router to generate a signal, and the signal is sent to at least one microcontroller disposed within the vehicle.

18. The method of claim 17, wherein the signal is processed by the microcontroller and used to adjust a property of the microcontroller.

19. The method of claim 18, wherein the signal is processed by the microcontroller and used to affect a status of a diagnostic trouble code stored in a memory on the vehicle.

Sub B9

20. An system for characterizing a vehicle's emissions comprising:

a data collector/router comprising:

a microprocessor configured to process data generated by at least one sensor disposed in the vehicle to generate a data packet; and

a wireless transmitter in electrical contact with the microprocessor and configured to receive the data packet from the sensor and transmit it over an airlink to a network and then to a host computer system, the host computer system comprising a processor configured to received the data packet from the network and then analyze the data packet to generate data describing the vehicle's emissions.

30

22. The system of claim 21, wherein the data collector/router further comprises a connector configured to receive data from the vehicle's OBD-II connector.

23. The system of claim 22, wherein the data comprises data representative of emissions and is generated from a gas-sensitive sensor disposed within the vehicle.

24. The system of claim 23, wherein the data is analyzed to infer, estimate, or predict a concentration of oxygen, oxides of nitrogen, hydrocarbons, or derivatives thereof.